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ABSTRACT

This paper reviews recent collaborative action research studies by experienced teachers who have assumed complex new roles. Collaborative action research, under certain conditions, can become an effective way to promote the good and the moral through the personal and professional (cognitive-structural) growth of teachers. In learning organizations, workers at all levels bring their skills and individual expertise to meetings and work together on problems. Effectiveness is based the connections between people and they way they mutually identify and solve problems. To bring new understandings into a learning organization requires transformative change. An organization involved in transformative change has characteristics like mutual learning, mutual growth, empowering others, and empowering teams within the organization. Administrative support and participation is crucial, as is the colleague involvement of other teachers. Collaborative action research teams can become temporary systems in the more permanent organization, but if the temporary system of the team cannot find ways to interface, connect, cooperate, and collaborative, then the products the action research may not endure. (Contains 55 references.) (SLD)

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Confronting the Good, the Bad, and the Moral through Collaborative Action Research

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Confronting the Good, the Bad, and the Moral through Collaborative Action Research

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Introduction

In the Ed.Researcher in 1995 D. C. Phillips wrote about the confusing, ambiguous, and contradictory meanings of constructivism. He observed that the definition of constructivism seemed to be "the good, the bad, and the ugly" all at once (1995, p. 5). We discussed his view in the 7th edition of our Educational Psychology textbook (Sprinthall, Sprinthall, & Oja, 1998). Phillips' review can be summed up by noting that the "good" represents the idea of active participation by the learner in the William James/John Dewey tradition, as well as the idea that such learning takes place in a social context; the "ugly" is the view based on political ideology; and the "bad" is closely associated with the "ugly," since it assumes a world of complete relativism or of situational ethics.

Unfortunately, like many concepts such as creativity or intelligence, collaborative action research has been misused to such an extent that it, too, has become confusing and ambiguous and contradictory.

Definition of Action Research that expresses Democratic Process & Outcomes

To start I want to introduce a working definition of action research that I think fits "the good" and has the moral dimension. . This is a working definition of action authored by participants in the 1989 International Symposium on Action Research in Brisbane. Altrichter, Kemmis, McTaggert, & Zuber-Skerritt (1990, p. 19).

Table 1: Working definition of action research

If yours is a situation in which

- People reflect and improve (or develop) their *own* work and their *own* situations
- by tightly interlinking their reflection and action
- and also making their experience public not only to other participants but also to other persons interested in and concerned about the work and the situation, i.e. their (public) theories and practices of the work and the situation

and if yours is a situation in which there is increasingly

- Data-gathering by participants themselves (or with the help of others) in relation to their own questions
- Participation (in problem-posing and in answering questions) in decision-making
- Power-sharing and the relative suspension of hierachical ways of working towards industrial democracy
- Collaboration among members of the group as a "critical community"
- Self-reflection, self-evaluation and self-management by autonomous and responsible persons and groups
- Learning progressively (and publicly) by doing and by making mistakes in a "self-reflective spiral" of planning, acting, observing, reflecting, replanning, etc.
- Reflection which supports the idea of the "(self-)reflective practitioner"

then Yours is a situation in which ACTION RESEARCH is occurring.

Excerpted from Altrichter, Kemmis, McTaggert, & Zuber-Skerritt , 1990, p. 19.

Collaboration is a key characteristic in action research, and in my work I've chosen to emphasize that aspect and so I have used the term collaborative action research. I've also emphasized school and university joint participation.

Overview of Collaborative Action Research in the U. S.

Action research was introduced in the 1940s by Kurt Lewin as an attempt to merge social service and social action. He challenged traditional social science researchers to work collaboratively on all parts of a research process. The goal was to produce theory and improve practice. In the 1950s action research was introduced into education by Stephen Corey and others whose goals were to contribute to educational theory and improve practice in classrooms and schools. They argued that researchers had used experimental methods to arrive at generalizations with no intentions of doing anything with the results in terms of improving practice. Corey was more concerned with the site-specific context of a school, and less concerned with generalizable results to all schools. He encouraged teachers, supervisors, and administrators to all become involved in both inquiry and application of the findings from action research.

In the late 1950s action research declined; it had been attacked by traditional researchers as unscientific (precisely because it took into account the messy, problematic

nature of work in schools), weak methodologically (because it relied on alternative forms of documentation beyond quantitative statistical analysis), and lacking generalizability (because it focused on the site-specific context of the problem for inquiry). Traditional researchers had withdrawn to university lab settings. Teachers had turned to other methods of inquiry and evaluation.

In the 1960s action research was used as inservice staff development for teachers. It was defined as inquiry done by teachers with the help of consultants; its goal was to improve practice.

In the 1970s there was a resurgence of action research in education, as many younger, newer researchers became dissatisfied with limitations of traditional quantitative research methodology and design and as teachers became increasingly dissatisfied with their inservice programs. Action research re-emerged as cooperation between teachers and university researchers resulting in an increased likelihood that all participants would be committed to change if their own action research study indicated change was necessary. A team atmosphere provided a support group where members could risk change and experimentation. A greater range of perceptions and competencies on a team increased the likelihood of the study being within the realm of possibility and the reality of the context of a classroom or school. In the 1980s collaborative action research had these characteristics: the action research team context was non-hierarchical, self-managed; had norms of collegiality and experimentation; power was diffused among the team; teachers developed their own tasks and flexibility undertook a variety of roles and responsibilities; the setting allowed reflective thinking and cognitive expansion; decision-making was participatory and collaboratively shared (Oja & Pine, 1987). In the 1990s teacher-as-researcher, teacher-as-inquirer, teacher-as-reflective practitioner were common goals for teacher education and staff development in school improvement (Cochran-Smith & Lytle, 1993, 1996), and the call for teachers to become researchers of their own practice is heard around the world. Many of the examples and much of the information about action research useful to teachers has come from the United Kingdom and Australia where action research has had a history of success

In my research with Gerald Pine and Lisa Smulyan, we found several benefits from collaborative action research to include improving practice, adding to theory, and

enhancing teachers' personal and professional development (Oja & Smulyan, 1989) . Action Research contributes to the theory and knowledge base needed for enhancing practice. Teachers' personal and professional growth is another benefit of action research; teachers growing into post-conventional stages of development preferred the working context of the collaborative action research team for solving school and classroom problems. Teachers develop skills in decision making and problem solving. They increase their ability to identify problems and see solutions in a systematic fashion. Teachers build a collegial networking system in the schools. Action research can be used at all levels from central administration, classroom, school-wide, system-wide, and in the university classroom.

The school restructuring climate that began in the 1990s and continues today is better in supporting teachers to be action researchers for the following reasons. Teachers are being encouraged to be more autonomous and active in the school restructuring efforts, so their action research is seen as an advantage and not a threat to administration. Time is a factor, yet school improvement programs and strategic district planning is encouraging more time during the school day to be used for teachers to solve problems together and with administrators or parents. A climate of trust is needed for successful action research, and as collaboration among teachers grows, the barriers and closed door policies among teachers are changing. Action research is more accepted as a methodology for studying teaching practice, not only because of the acceptance of more qualitative data techniques like narratives and ethnographies, but also because teachers' thinking, observations, and reflections are viewed as crucially valuable to the knowledge base of teaching practice.

Collaborative Action Research: The Good and the Moral

Individuals in collaborative action research groups aim toward a process of working together that reflects social and power equity. Individual's personal and professional development can occur as an outcome of the collaborative action research process. Care for and greater understanding of others can occur in collaborative action research –participants are encouraged to take the perspective of their students as well as their colleagues and other professionals in the schools. Teachers develop their capacity for empathy with each other and with their students. Teachers are able to connect with

each other. Collaborative action research groups can become just communities, where each voice is honored and each person's contribution is valued. Teacher educators can help promote these aims through school-university collaborative action research. I have used these criteria in three sets collaborative action research studies that are described briefly in the later sections of this paper. In these studies collaborative action research was a venue for teachers' self-study, a forum for teachers to examine themselves in relation to good teaching, with other teachers in the group as a support system with whom they could talk through the dilemmas as well as insights from their action research.

In collaborative action research teachers can explore the social, cultural, and political/power experiences in the school as well as the pedagogical intentions and expectations in their classrooms. Collaborative action research can foster democratic participation in the school community. What has continued to interest me is that in the restructuring of schools in the last decade teachers have been asked to participate in new roles that may cause disequilibrium. School administrators are expected to lead the way. University administrators are urging faculty to connect more with K-12 schools. How can schools and universities collaborate more to enhance teachers' effectiveness and development and support schools in their missions and do so in ways which are good and moral.

The questions I've asked led to how I measured the outcomes in terms of the teachers' development and the school contexts/environments to support teacher development. How can collaborative action research support continuing adult development? A supportive, democratic collaborative action research context is a structure and process that people can learn to use to address school and classroom problems. It is about communication and how shared conversations can be facilitated and sustained. Collaborative action research can be scary, teachers don't know how to do it. What does instruction and modeling of the facilitative process look like? We investigated this over a two year period in one action research group and described a bit of it in Chapter 5 of a book on Collaborative Action Research (Oja & Smulyan, 1989, pp. 166-167) when we talked about collaboration among the university researcher on the team and the teacher-researchers in terms of roles and leadership taken on over the five phases of the two-year period of action research. Ted, one of the teachers on the team

said that he originally questioned his participation on the action research project, "...because I thought it was going to be the same type of thing. You [the university researcher] would run the thing and we would just sit here, and you were the university teacher and we were the junior high teachers. ...We were going to have to agree to everything. But I'm glad to say I haven't found that ... I think all of us feel equal." Often the teacher educator can be helpful in naming the processes that shut down the democratic process and providing the thinking behind the processes that seem to work or not work in the collaborative action research process – both group process and research process.

Democratic processes are messy. Collaborative action research is messy. Good intentions are not enough. I once heard a university educator describe his role as facilitator of the team as sitting with them but not participating because it was supposed to be their work – in my view that is not a collaborative action research team. It was worrisome that in one of the sites, a teacher who scored at higher stages of development that the other four teachers on the team left the team midway. Hindsight and reevaluation of the documentation suggests that the teacher educator on the team was reinforcing the similarities among the teachers, and less publicly reflecting on the differences that made the high stage teacher's contributions helpful (see Oja and Ham, 1984). The commitment to work together and the challenge to stay together results from teachers having a stake in the outcome of the action research. And there needs to be someone on the team that can take on that role to keep the conversation going and to honor each teacher's voice and each person's contribution. This facilitator role can rotate among the members as they feel comfortable and/or able in taking it on – in coming into conversations, retreating back, diffusing dualistic stances, recognizing and naming oppressive structures. An example in the beginning of one study was the junior high school assistant principal who was not trusted by some members of the team who feared retribution if they were to speak the truth about the school context. The question is how can teachers become skillful in this role and empowered so that they can use their understandings in open discussions about power relationships in school?

The discussion that that follows examines school-university collaborative action research (also referred to in this paper as action research and collaborative inquiry) as the

vehicle for teachers' integrated reflection and significant new role-taking that may facilitate the development of moral development and other dimensions of cognitive-structural growth such as conceptual level and ego/self development. Action research is a form of teacher learning and staff development aimed at more equitable classrooms and schools for the experienced teachers working together in school-university collaborative action research groups. Action research and collaborative inquiry can contribute to professional development and result in more caring and just school environments.

School and University Educators in Collaborative Action Research

In the new role of teacher-researcher, teachers are helping to redesign teaching and schooling in line with goals for restructuring schools to support teaching for *all* students' higher order understanding. Federal, state, and local education agencies are developing policies and supporting model programs for school organizational change. Joyce and Showers (1995) emphasize teachers' need to investigate and try out new teaching roles that best teach students to develop intellectual independence, reasoning and problem-solving capabilities, competencies needed in handling the explosion of information and data, as well as the ability to navigate the information age. In addition, teachers are asked to take on numerous new roles requiring collaboration with other adults and with pupils. For example, teachers are expected to guide pupils' social construction of knowledge through cooperative forms of learning. Teachers are expected to collaborate with numerous other adults (e.g. student teachers, aides, special educators, parent volunteers) in the inclusive classroom in order to meet the needs of all pupils. University-school partnerships can play a crucial role in continuing school development programs. Teachers and students from elementary and secondary schools and the university combine forces to learn collaboratively and creatively. This means that future teachers get the experience of teaming with experienced teachers, working with parents, learning with pupils, while they are confronting the dilemmas of learning to teach. In school-university partnerships experienced teachers and administrators in the school are learning alongside the university professors. This is a form of professional development school.

Action research and collaborative inquiry are providing a mechanism for teachers to investigate and tryout these new roles as researchers (see for example Atweh, Kemmis,

& Weeks, 1998; Calhoun, 1994; Hollingsworth, 1997; Lytle & Cochran-Smith, 1992; Noffke & Stevenson, 1995; Sagor, 1992; and Zeichner & Liston, 1987.) Collaborative action research is particularly important today at a time when there is a call for universities and schools to collaborate in the structural reform of education both in the schools and the teacher preparation programs. School-University collaborative action research is an important strategy for change because of its focus on teacher involvement in defining and solving school problems, its emphasis on collaboration between school teachers and university faculty, and its problem-solving focus encouraging reflection on practice. In collaborative action research groups, teachers-as-researchers provide practical knowledge of the problems chosen for study. University educators can become democratic facilitators (Oja & Smulyan, 1989) who help the group to approach problems from multiple perspectives. Collaboration of school and university educators recognizes and utilizes the unique skills and insights provided by each participant. Leadership in this type of action research group involves a democratic process which encourages each member to lead the group when they have the skills and confidence to do so. Leadership is a collaborative effort; group members share the task and maintenance functions of group process that allow the group to meet its goals. The university educator may, however, have a unique place in this process, providing the initiative, and modeling the questioning and support necessary to keep the group moving on its task. Using a developmental approach to leadership, this outsider may also help address the needs of the group and its individual members by offering developmentally appropriate guidance, support, and challenge. Consensus in decision-making can encourage each participant to voice their perspective and attempt to understand and take the perspective of others.

Collaborative action research proposes alternatives in the conventional roles of both school and university participants. All are asked to take on significantly new roles and provided with the support to do so. Teacher-researchers learn and use action research skills to reflect on their practice and experiment with a range of new teaching, leadership, or supervision roles. University educators become sensitive to the complexities of classrooms and/or school leadership functions while they learn how to collaborate more effectively with schools.

A collaborative action research group of school and university educators is sensitive to the school in which the inquiry takes place. Participants work together to understand the school and its influence on teachers' development, the limitations as well as the opportunities for personal and professional growth. Collaborative action research group discussions often center on the real-life dilemmas current in the schools. There is a level of moral complexity in the group setting that seems fulfilling rather than frustrating for someone using higher stage moral reasoning and can be challenging for those using lower stages of moral reasoning. These knowledge perturbations in the collaboration action research group interactions are similar to Piaget's concept of disequilibrium in cognitive development that stimulates growth to greater understanding and problem-solving.

Moral Development and Other Domains of Personal and Professional Development as Outcomes of Collaborative Action Research

Cognitive-developmental theory helps clarify the personal and professional outcomes when teachers take on the new, more complex roles in collaborative action research. Personal development along stages of development represent progressions and sequences from the more concrete to the more abstract in a number of domains e.g. moral/ethical development, ego/self development, interpersonal development, cognitive/conceptual development. The research studies summarized in this paper have been more focused in the transitions, the movement, and the potentials, rather than the individual stage. In focusing on the progressions and potential for movement, a combination of quantitative and qualitative data is gathered in our studies of people in the collaborative action research process. Quantitative data on developmental tests identifies placement into stages or positions in the progressions. But a focus on qualitative descriptive data of individual participants invites a fluidity always present in our thoughts and our interactions. It is often difficult to express this "concept of fluidity," although we continue to struggle to do so. For teachers and teacher educators who view the developmental progressions as possibilities for growth, there can be common understandings about appropriate supports and challenges attractive to adults operating at different stages. As well, there are opportunities for adults' own construction of their developmental growth as they make choices among options for their involvement and

activity related to staff development alternatives in schools, collaborative action research being one of them.

A question that arises is how does a developmental perspective compare with other perspectives on professional development. Greater understanding of self and others as a developmental process is a knowledge base for professional development. The model for in-service education is to create educational environments and staff development options in which teachers at different stages can choose to become involved. I've found that collaborative research is a good option, not as a mandated requirement, but as a voluntary choice for the individual teacher. Collaborative action research projects focus on a variety of questions about teaching and learning, including pedagogical content knowledge and the findings from research on effective teaching. Whatever the focus of inquiry is in a school-university collaborative research project, there is also a developmental stage perspective which can help provide the process knowledge for how a teacher assimilates the new information and implements newer teaching strategies. This makes developmental theory a larger umbrella or an important matrix for how teachers develop through their involvement in collaborative research efforts.

"Higher is better" is a cognitive-structural stage concept that suggests that more advanced stages of development are more adequate for performance in complex human interactions. The movement from earlier to more advanced stages of development is activated by cognitive dissonance or disequilibrium. The Vygotskyian (1978) zone of proximal development and socio-cultural theory add to earlier theory from Piaget to what David Hunt calls the arena for a constructive mismatch to describe this movement to new learning. The key seems to be Hunt's concept of "reading and flexing" also called matching and graduated mismatching (see, for example, Hunt's work described in chapters 12 and 14 in Sprinthall, Sprinthall, & Oja, 1998.) A number of research studies in a variety of professions show that higher stages of development across a series of domains are related to more effective performance in complex and ill-structured tasks that professionals are confronted with at work. Integrated learning in the professions based in developmental theory results in more caring, more allocentric and more democratic behaviors and more sensitivity to diversity. Some of these related studies are

outlined in Oja and Reiman (1998), Sprinthall, Reiman, and Thies-Sprinthall (1996) and Reiman, Sprinthall and Thies-Sprinthall (1999) and show the relationships between developmental stage and behavior in complex situations. For example, in the teaching profession teachers at higher stages can manage group instruction and respond to individual and small-group differences; are better able to adopt and implement strategies for higher order thinking and cognitively guided instruction. School principals at higher stages operate more democratically with teachers. School counselors at higher stages are more empathetic and flexible in their counseling skills

The objectives of cognitive-structural teacher development is adult personal development along dimensions of moral judgment, ego maturity, conceptual level, and increased professional competence and effectiveness in models of teaching, supervising, and school improvement. *Moral maturity* is defined as development toward principled moral judgments, away from unquestioned conformity to peer, social, or legal norms and moves toward self-evaluated standards within a world framework cherishing individual human rights and mutual interpersonal responsibilities. Increasing *Ego maturity* is defined as the development of more complex, differentiated, and integrated understanding of self and others, away from manipulative, exploitative, self-protective attitudes, toward self-respect, mutual respect, and identity formation. *Conceptual growth* is defined as development of complex ways of understanding, away from thinking in terms of simple stereotypes and clichés and moving toward constructed knowledge, recognition of individual differences in attitudes, interests, and abilities and increased toleration of paradox, contradiction, and ambiguity. *Professional competence* and effectivess are defined as more complex understanding of the many different models of teaching, supervising, and school improvement, and moving beyond rigid adherence to one single model toward flexible application of models depending upon the needs (stages) of all learners (whether they are pupils, student teachers, or experienced teachers. Calls for restructuring of education are expecting that teachers will be able to take on these new roles roles and that administrators will be able to lead the way.

Professional Judgment, Moral Judgment, and Action

Dawn Schrader (1999) helps us understand the relationship between moral judgement and action when she adds the notion of meta-reflection. Meta-reflection is

one's ability to reflect on one's own thinking, to thinking about one's own thinking. There is a need for adults to develop the capacity for meta-reflection. Kohlberg assumed that "hypothetical" moral dilemmas would elicit a person's best thinking and reasoning, while "real-life" dilemmas witness inconsistency between the level of moral reasoning and the actions taken. Schrader suggests that the explanation for the inconsistency between moral judgment and action may lie "in the ability or inability for the moral decision maker to engage in meta-cognitive awareness of their thinking process (1999, p. 92). She goes on to say that "It is this [meta-cognitive] awareness that leads to the possibility of engaging in a different moral action choice than was immediately made, and possibly, with experience and practice, this reflective awareness could lead to moral stage change." Adults make judgments from the base of their ego, moral, conceptual, social development, and then make decisions for action in their real life work situation. The adult then thinks about their actions and judgments, and this opportunity to reflect on the process of one's own thought processes provides another cycle of action and reflection. Schrader suggests that this cycle provides "fertile ground for the Piagetian equilibrative process to recommence (including the ego, social, moral and interpersonal epistemic domains), and may change one's meaning making framework, beginning the cycle of development and the quest for consistency between thought and action (Schrader, p. 93)." We suggest that the collaborative action research framework can be a model of adults taking on significant new roles with the opportunity for integrated inquiry and reflection (meta-reflection) that leads to integrated learning. Studies of collaborative action research help us to understand more about the cycles of roletaking and integrated inquiry that can result in moral development as well as the other domains of personal and professional growth.

Guided and Integrated Reflection in Collaborative Action Research

Action research by definition includes cycles of action and reflection. Reflection in the cognitive-structural studies of collaborative action research has been influenced by research on individual reflection or "guided reflection" (Reiman & Thies-Sprinthall, 1993) and joint reflection or "meta-reflection" through discourse in small groups (Oser, 1994). The strategy of collaborative action research is well suited to the notion of guided reflection in small groups. For example: a) In collaborative action research groups

teachers build supportive interpersonal skills and relationships that create a supportive environment necessary for development. b) In collaborative action research groups teachers research new skills (practices) and investigate prior understandings (theory) needed for their new roles. c) In collaborative action research groups teachers try-out their new, more complex roles in teaching or supervising or school improvement. d) In collaborative action research groups teachers consistently reflect on their new behaviors and responsibilities in the classroom or school and use each other as advisors, consultants, and co-inquirers when the new roles are creating periods of disequilibrium. e) Collaborative action research groups are on-going; time is allowed for the necessary cycles of action and reflection in the research. These five elements fit the five conditions of the cognitive-structural teaching/learning framework identified by Sprinthall, Reiman, and Thies-Sprinthall (1996) and tested in a number of studies over the past fifteen years.

Collaborative Action Research Complicates Understanding

Developing complicated understanding is a goal of collaborative action research aimed at the good and the moral. Bartunek, Gordon, and Weathersby (1983) focused on administrators and employees in a management education program, and they described problem-solving meetings concerning organizational issues that are ill-structured. The issues were highly complex and interrelated problems that have wide impact and involve many people in their solution. If these "messes" are important and are perceived as important by participants, and if participants are willing to explore alternative perspectives without the expectation of immediate results, then, they say, the conditions exist for increasing the complexity of participants' understanding. Strands of more complex understanding include increased cognitive complexity, character and quality of ethical reasoning, capacity for introspection and self-awareness, capacities for understanding others and interpersonal relationships, and increasingly broad views of society and social issues. Ultimately, "complicated understanding" is an ability to commit oneself to considered action in the midst of ambiguity. This is similar to the stage of development called commitment within relativism (Perry, 1981)

and reflective judgment (King and Kitchener,1994). Among the characteristics important for this kind of complex learning environment are the valuing of both cognitive content and personal experience, supportive interpersonal climate, and time for personal and group reflection. Some staff members should be able to serve as role models for complex understanding, take multiple perspectives themselves, and be willing to use and support each other's different skills and perspectives. Decision making is based on encouragement of dissenting viewpoints, avoidance of group-think, and acceptance of the validity of conflicting assumptions. Basic underlying assumptions include the notion that cognitive complexity and adult development can be transformed both in terms of horizontal development (new ways of thinking and reacting applied to new situations) and vertical development (series of shifts leading into qualitatively new thinking). These assumptions are in line with the integrated inquiry model of collaborative action research aimed at the good and the moral.

Teachers New Roles through Collaborative Action Research

The collaborative action research studies I've worked in started by teachers designing and trying-out action mini-units for their own new roles in teaching in their own classrooms, that included accepting ideas put forth by pupils, validating students' responses, fostering student ownership and feelings of responsibility in classroom discussions, managing cross-age teaching, organizing peer teaching, individualizing instruction, contracting with pupils, and designing small group work and cooperative learning activities. In subsequent studies teachers-researchers take on new roles in school improvement projects. In a subsequent study teachers investigated and tried-out new supervisory roles as cooperating teacher for student teachers and took on leadership roles in school-university partnerships for the preparation of new teachers. The studies were premised on the basic cognitive-structural conditions for promoting development and learning: role-taking (action), social interaction, and reflection. George Herbert Mead (1934) described the importance of *role-taking* as a catalyst for growth. Specifically, he maintained that active participation in a complex "real world" activity as opposed to role playing or simulated experience offered tremendous potential for development. *Social*

interaction has its roots in the work of Vygotsky who stressed the importance of discourse to development. As an example, teachers involved in collaborative action research meet regularly together to discuss their new roles as researchers as well as new expanded roles they are taking on in their classrooms and schools. Such discussion or social interaction presents the adult learner with a variety of perspectives and problems to resolve, thus encouraging individuals to develop a number of domains or frameworks for thinking or problem solving. In a Vygotskyian sense, the teacher in collaborative action research can perform at a developmentally more advanced level than when acting alone because assistance and coaching by others are provided. Dewey(1933,1963) elaborated on the important interplay between action and *reflection*. In the process of collaborative action research a colleague's functioning is "stretched" slightly beyond his or her current preferred style of problem solving. Stretching and the new cognitive-structural learning begins with a perturbation or knowledge disturbance. This idea was perhaps most central to Piaget's final reformulation of equilibration theory (Piaget, 1985). In particular, Piaget tried to describe more specifically how equilibration can lead to essentially new and more complex forms of thought, a process of reflective abstraction.

Teachers Investigate Expanding Their Teaching Roles in the Classroom

Our initial studies showed that it was possible to design deliberate psychological education mini-units that resulted in teachers' personal growth in moral reasoning as measured by the Rest Defining Issues Test, ego maturity as measured by the Loevinger Test, and cognitive complexity as measured by the Hunt Conceptual Level Test, and expanding their teaching roles in the classroom to meet the needs of individual students. These early studies are summarized below.

In a large midwestern school district in the U.S.A. a team of three university faculty and six doctoral students worked with 37 experienced elementary and secondary teachers over the course of a summer session and the following school year. The overall group was divided into three teams each facilitated by two of the university doctoral students. The program design fit the five conditions needed for cognitive-structural development: roletaking (not roleplaying), reflection, balance, continuity, and support/challenge. The teams of school and university participants met daily during the summer as all learned and practiced new skills related to the new roles that included

individualizing instruction, small group instruction through cooperative learning, facilitating peer and cross-age teaching, and contracting with students for behavior change. Embedded in the expanded roles were the notions that differentiated instruction enhances the possibilities that all students can learn. The teams met weekly during the fall semester of the following school year to reflect on teachers' action mini-units (subsequently termed action research units in later studies) to try-out the significantly new teaching roles. All teachers used the action research strategy to design, tryout, and refine curriculum units focused on their new teaching roles. Teachers were also responsible for the new teacher role (new to most) of effective facilitator of discussions in their classes to help pupils make sense of their new learning. In this quasi-experimental design there here were significant differences pre to post between the experimental group (N=37) and two comparison groups (N=25, N=23) on three cognitive-structural tests (the Hunt, the Rest, and the Loevinger tests are described later in this paper), favoring the experimental group of teachers who carried out action research mini-units in their classrooms (Oja & Sprinthall, 1978). The teachers' journals reflected their risktaking to learn new skills needed for the new roles, their hesitancy at first to open up with colleagues for feedback in the action research groups, their success and failure in applying the new skills in their new roles to the classroom via the action research units. Equally important the journals substantiated changes found in teachers levels of moral reasoning, ego maturity, and cognitive complexity, in particular their increasing ability to reason more abstractly, be aware of alternatives, take multiple perspectives, and be more sensitive to the emotions of self and others. The teachers in the experimental group significantly increased their ability to accurately identify and respond to human emotion (as measured by a Reflection of Feeling test emphasizing active listening). In addition, significant improvement was found in elementary teachers' ability to accept and use students' ideas, ask questions , accept students' feelings, and praise or encourage students (measured by interaction analysis of videotaped classes).

Subsequently, this model focusing on collaborative action research as a deliberate cognitive-structural strategy for teacher development was initiated with 20 experienced teachers all from the same school in the northeastern United States. The school had already begun a school-wide improvement program. This study adhered to the same

design described above, incorporating the five conditions for adult development. Meeting within small-sized collaborative groups teachers and university instructors built supportive interpersonal relationships. They investigated models of teaching and practiced more complex teaching skills associated with the new teacher roles of individualizing instruction, increasing pupils' interpersonal skills through cooperative learning type activities, supervising peer teaching or cross-age teaching in their own classes, and contracting with students for behavior improvement. Teachers tried out the skills in their new teacher roles in their classrooms using cycles of action research. The pretest scores on the Loevinger, Rest, and Hunt tests for these 20 teachers from one school were similar to pretest data in the previous study with 85 elementary and secondary teachers from many different schools. At the end of the 16 week experience, post-test gain scores indicated significant growth in moral judgment, from 42% to 52% principled thinking on the Rest DIT. In case studies of individual teachers whose growth in moral judgment was matched by increases in ego stage, that change was in the direction from Conformist to the Conscientious Stage on Loevinger's Test. This was similar to the ego test results in the previous study. In this study the average ego test scores of the group remained stable pre to post at the self-aware ego level, and the average CL test score for the group also remained stable pre to posttest, at moderately high CL. The underlying dimension of moral judgment, however, did show significant gain for this group of 20 teachers, in the 16 week period.

Teachers Investigate School Organizational Climate

The next cognitive-structural study in this series was a two-year case study of two collaborative action research groups of junior high teachers, each group at a different school, one in the midwest and one in the northeast U.S.A. In this study teachers-as-researchers worked on a collaborative group project related to improved practices in their schools instead of individual action research units on new teaching roles in their classrooms. This multi-case study design focused on ten teachers, representing a range of ego, moral, and conceptual test scores. In this case study two groups of five teachers were chosen from volunteers in two junior high schools who wished to become involved in a collaborative action research project in their school. The five teachers in each school were chosen so that each teacher represented one stage of ego development e. g. the

conformist stage, the self-aware stage, the conscientious stage, and the individualistic stage. No teachers in the pool of about fifty volunteers scored at the autonomous stage. The multi-case study documented each teacher's reactions, attitudes, and behaviors in the collaborative action research process. Each collaborative action research group consisted of five teachers and two university educators. Each group chose its own area of inquiry; one group focused on teacher morale and the other on block scheduling. The university educators worked closely with teachers in the collaborative action research groups in the two middle/junior high schools over a period of two years. The overall framework of the collaborative action research groups included regular opportunities for the participants to meet and discuss ideas and feelings in a relaxed mode using the Vygotsky, Furth, and Freire instructional principals. Transcripts of these meetings over the two years of the project permitted careful observation and analysis of the five teachers in each group over the duration of the project. The findings showed that teachers who scored at different stages of development reacted differently to the reflective inquiry and to the group process of the collaborative action research. Teachers who scored at different developmental stages exhibited different patterns in their attitudes toward decision-making and change, perception of group organization and group process, perceptions of leadership, and perceptions of school administrators. The university researchers took on the role of democratic facilitators of the collaborative action research group. The meta-analysis of the workings of the collaborative action research groups documented the roletaking and reflection in the group as the teachers became collaborative action researchers. The teacher's cognitive-structural stage perspective defined a meaning system through which the teacher interprets and acts on issues related to the reflective inquiry and processes of collaboration in the group during the research. The findings of this multi-case study suggest that the same basic structures that shape a teacher's meanings and attitudes toward change also operate in the person's conceptions and behavior in terms of the group dynamics, the research process, group leadership, the school principal in relation to the group and the goals and outcomes of the research.

In particular, at the conformist and self-aware ego stages, we documented the teacher's tendency to act from external rather than self-evaluated standards with little appreciation of multiple possibilities in the problem-solving situations of the

collaborative action research process. At the conscientious ego stage, the teacher-researcher shifted toward more self-evaluated standards, and demonstrated a fuller recognition of individual differences in the attitudes, interests, and abilities of other people on the action research team. Finally, at the transition between the individualistic and autonomous stages of ego development, the teacher-researcher assumed multiple perspectives, used a wider variety of coping behaviors in response to school pressures and action research issues, employed a larger repertoire of group process and change strategies, and was very self-reflective and highly effective in the collaborative action research (Oja & Smulyan, 1989). The strength of the cognitive-structural approach in this multi-case study was as a model for understanding the underlying patterns and changes in teachers' thinking and problem-solving on the collaborative action research team.

The role of teacher-researcher is still new to many schools and teachers; it may be a stimulating experience for teachers, and, at times, overwhelming. By observing closely the natural process in this study over two years, we were more able to understand how collaborative action research could be best put into practice. In relation to the school organization we noted that the collaborative action research group became a temporary system in the school that differed from the permanent system of the school in a number of ways. For example, the action research group was characterized by the following conditions: non-hierarchical, self-managed; norms of collegiality and experimentation; power diffused among the teachers on the team; teachers develop their own tasks and flexibly take on a variety of new roles and responsibilities; a setting of pause, reflective thinking, cognitive expansion; participatory and collaboratively shared decision-making (Oja & Pine, 1987). See Table 2, Teacher Perceived School and Action Research Contexts.

Table 2
Teacher Perceived School and Action Research Contexts

School Context **(Permanent Systems)**	Action Research Team Context **(Temporary System)**
Change initiated and managed from the top	Change initiated and managed from the bottom, middle, and the top

Hierarchical, management decides Norms of mutual tolerance & convention	Non-hierarchical, self-managed Norms of collegiality & experimentation
Power concentrated at the top	Power shared among the team members
Tasks are assigned; roles are defined, structured, and limited to specific functions	Team members develop their own tasks and flexibly take on a variety of overlapping new roles and responsibilities
"Behaviorally busy" setting, reactive thinking, cognitive narrowness	A setting of pause, reflective thinking, cognitive expansion;
Directed and reactive inquiry	Participatory and collaborative inquiry

Adapted from Oja & Pine (1987)

At the beginning of the project one action research group asked "how can we make scheduling changes to benefit the school?" A year later this group's focus had broadened to a study of teacher morale and job satisfaction in relation to organizational changes in the junior high school. The results of the team's research survey and interviews showed that: 1) the staff at the school felt that teaming was beneficial, but they did not have the time to communicate with other staff members to share ideas and materials, and they did not have enough time to plan and manage assignments; 2) the staff felt they had little involvement in decision making; and 3) when staff were divided into high, moderate, and low groups based on their morale or job satisfaction scores, staff in high and low groups differed in three areas of response: time management, communication with colleagues , and communication with administrators, particularly in areas of clarity of goals and involvement in decision making. At the end of the two year project the team's report to the principal and staff had seemingly little effect on the school at that time. Ten years later we see changes in the school organization that seem to reflect some of the findings of the action research group. Keeping in touch with the school has reinforced the fact that real change takes time; at this school the principal at the time of the collaborative action research study is still the principal.

The outcomes for individual teachers in the group agrees with previous work suggesting that teacher participation in action research leads to important personal and professional growth. The value lay in individual's increased feelings of confidence, expertise, and understanding of both the research and the school context. It also grew out of teacher's belief that their work provided a model for other school practitioners who wanted to try action research. As several team members pointed out in their final interviews, the project was successful because they had shown that teachers could indeed be researchers. The development of teachers belief in the value of their work is reflected in several themes. First, teachers' understanding of action research changed over time. Changing definitions of action research grew out of team member's experience in the project and enabled them to explain and legitimate the process they had experienced. Second, teachers' perceptions of themselves as researchers evolved over time, shifting in at least one case from a teacher feeling he knew little about research to describing himself at the end as very knowledgeable in this particular area. Finally, as a result of clarifying what was meant by action research and developing a sense of themselves as researchers, team members began to identify ways in which the action research process could be of further use to them in their classrooms, school, or professional careers.

Although all collaborative action research teams may not experience the same processes and patterns exhibited by this group, analysis of certain patterns suggests several possible generalizations. First, an action research team must be flexible in carrying out its research project. Attention to the group's interpersonal needs, teachers' inexperience as researchers, their uncertainty as to outcomes, and the school context within which they work may prevent the team from working sequentially through predefined research steps. For example, teachers may begin working with ideas and processes with which they are most comfortable, such as data collection. Allowing recursion to take place in an action research project allows teachers to progress from familiar and concrete tasks to unfamiliar, more abstract concerns about research question and design. The opportunity to experiment, reflect, redesign and re-question ultimately provides teachers with a project that is meaningful to them. Although the team will move through typical steps in its research: identifying a problem, defining a research question, choosing methodology, designing the project, collecting and analyzing data, and

presenting results, it will not always do so in a neat, sequential process. It may frequently cycle back into earlier steps or work simultaneously within several. The process tends to be cyclical or recursive, an indication of participants' perception of the interconnectedness of the steps of the research process and of their needs to learn and use those steps in ways that best meet their needs. (See Calhoun, 19 , for recent examples of the collaborative action research process.)

A second generalization which can be made is that a group of teachers working together on a research project will have to address interpersonal as well as research task demands. At times, interpersonal concerns such as trust, leadership, group boundaries and individual commitment may dominate; at others the research task may take precedence. This study suggests that a team will experience a shift in emphasis from interpersonal to task-related concerns over the course of its existence. At the outset of the project, interpersonal concerns include establishing trust, setting boundaries, and developing norms. The group's initial sense of identity may be based on agreement in areas of opinion not necessarily related to the project. After the team addresses concerns of who they are in the group and how the group will operate, it may need to deal with issues of power and leadership. The team gradually coalesces around a common goal or set of tasks. Members who disagree with this goal create a conflict for the group midway through its life, and the group may need to reexamine its professed purpose, its membership, and its boundaries. Finally, the group focuses on completion of its task and may develop strong feelings of cohesion and pride based on common effort and a unified product. Theories of adult moral, ego, and conceptual development help us to examine issues such as power, leadership, and group interaction which emerge in the phases of the group process.

A third generalization which can be made is that a team's research project will be influenced by its interpersonal concerns and patterns. In this project, the team's choice of a school rather than classroom-based research project grew out of their team building processes in phase 1. Their school context discussions led them to focus on school rather than classroom issues, even these discussions allowed teachers to share opinions and ideas. Shifts in the focus of the project -- from scheduling to teacher morale -- were influenced in phases 2 and 3 by teachers' initial hesitation in taking control and moving

ahead on the project and their gradual growth in understanding the research process. Once they were willing to assume greater leadership in their own project in phase 3, they became very task oriented and moved ahead on the research project. Their positive feelings about the task and group process in which they were engaged in phases 4 and 5 overrode some team members' concerns that their research results would not be used by the school administration to improve school practice. To some extent, the cohesion of the team, the maintenance of good relations, and the value of learning the process of action research became more important than questioning or changing the project to make it immediately applicable in the entire school.

Results of this and other collaborative action research projects suggest that the collaborative process provides a rewarding experience for teachers. Team meetings and projects can create a healthy outlet for teachers' frustrations with their school and a sense of collegiality absent in many school settings. Teachers feel that they become better observers of the school context, more skilled researchers, and more able to address problems which arise in the classroom or school. Teachers also gain a sense of professionalism from having worked together to carry out a research project and produced results which may be of interest to those outside of their own school community. Educators leading or engaged in collaborative action research must be able to recognize elements of the process the group experiences in order to make best use of group time, resources, and abilities. An understanding of the interaction between group dynamics and the research project will lead to a more positive professional experience for participants and more successful action research in the schools.

Teachers Investigate their Mentoring Roles in Supervising Student Teaching Interns

The final study to be reviewed here is a longitudinal study involving collaborative action research groups of teachers who took on significantly new roles in their cooperating teacher responsibilities with student teaching interns. Teachers who are more active in the collaborative action research process are more invested in the group's problem-solving and consequently more motivated by a need to reconcile the perturbations or contradictions to their current or preferred ways of understanding and solving problems. In this study we observed the teachers taking on the newer role of cooperating teachers to student teaching interns, and how these cooperating teachers use

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their collaborative action research groups to get support to deal with problems which their current cognitive structures cannot adequately resolve alone. This study resulted in significant new leadership roles for teachers in a school-university partnership that led to restructured programs for internship placement and collaborative supervision in the teacher preparation program at the university.

Cooperating teachers, the school principals, and the university supervisors of the interns met in action research groups to investigate theories of development and models of supervision. Participants were drawn from three communities in the northeastern United States, one was a state university community and the other two were more rural communities within 30 miles of the state university. These three communities represented the types of schools and teachers that this state university works with for the preparation of teachers. This sample afforded an excellent opportunity to study what we thought were powerful factors involved in collaboration action research that could promote cognitive-structural growth of teachers taking on significant new cooperating teacher roles. [Although student teaching interns were interviewed, they were not involved in the original three-year study; our focus was on the cooperating teachers and their cognitive-structural development. (Oja, 1990-1991). A few years later, however, we were able to study the cognitive-structural growth of interns in one of the schools in the recently formed school-university partnership ;see Oja, Struck, Chamberlain, & Moran, 1997.]

Prior to the beginning of the project the superintendent of the district that included all three communities had asked his staff to rethink their supervision practices for teachers in the schools. At the beginning of the project the presenting reality was that of schools in the very early phases of restructuring from an industrial model to learning communities. In the schools some teachers were organized in teams and taught in an interdisciplinary manner, some were in teams but taught separately, and other teachers remained separate and taught alone. For instruction in some classes and subjects students were heterogeneously mixed and for others, they were homogeneously sorted. The constructivist theory of learning was just beginning to take root in the form of the literacy writing-process which has its roots in constructivist learning principles. So some teachers were changing from teaching at the front of the room with more direct teaching

styles of lecturing and giving directions, critizing or justifying authority, to guiding learning through use of more strategies that involve asking questions of students and accepting and using ideas of students, praising and encouraging students, and accepting and clarifying the tone of feelings of students in an unthreatening manner. Some students' learning was becoming more of an active rather than a passive process. Classrooms in the schools were generally uniform in size but some had movable walls which were occasionally opened to create larger spaces. Some teachers shared planning time; others were accustomed to planning alone and teaching in more typical self-contained classrooms. The faculty in the three communities were predominantly veteran groups. Many had begun their teaching careers in these communities. In terms of personal life changes, some of the teachers were marrying, starting families, and raising children, some were divorcing, and others were single; some were experiencing the excitement of becoming grandparents while others were experiencing the added stress of caring for ill parents or the pain in losing their parents altogether.

Of increasing interest to our investigation was the way these school communities responded to the university teacher preparation program during the placement process for internship and during the cooperating teachers' work with the interns. The existing university framework for supervising interns programs(Oja, Diller, Corcoran, & Andrew, 1992.)exhibited many aspects of what is now being called for in restructured teacher preparation. The university teacher preparation program that started in 1974 was an undergraduate-graduate integrated five-year program culminating in a 30 credit masters degree that included a post-BA full-year internship for a teaching license. The university selected its teacher candidates from the top half of the university population, requiring competitive scores on the GREs and GPAs averaging 3.2 on a 4.0 scale. The teacher preparation program already put extensive commitment of its faculty toward supervision of interns, and most faculty in teacher education supervised in field experience courses. Six interns per year for one faculty member was the equivalent of two courses out of a five-course faculty load, and this represented the university's commitment to the five-year teacher education program.

At the beginning of the project placement of interns still followed a fairly traditional model. The Director of Field Experiences called the school principal and the

principal placed the intern with the cooperating teacher. Little input came from teachers. So the internship placement and supervision structure was still predominately accomplished through hierarchical decision-making, and while not singularly top-down, involved teacher input more than actual teacher participation. The same was true of prospective interns who generally had choices only about the geographical area. Although the triad relationship of university supervisor, intern, and cooperating teacher was valued, cooperating teachers felt they could do more in the supervising process with their assigned student teaching interns.

The methodology was similar to that in the previous studies. We combined and synthesized multiple kinds of data and used the concept of triangulation to bring these multiple data to bear on the research questions addressed by the project. These included: 1) audio recordings of all team meetings and transcripts of selected meeting tapes; 2) written summaries of all school and university meetings connected with the project; 3) teacher journals and supervisory logs; 4) pre/post questionnaires and surveys with participants; 5) three empirical measures of participants' developmental stages; and 6) interviews conducted at crucial points in the research process with school and university participants. In addition, a self-assessment inventory of supervisory competencies was developed by the teams and was used by cooperating teachers in the 2nd and 3rd year of the project.

At the close of the project, audio tapes, year-end surveys, and minutes of supervisory group meetings were analyzed to assess the knowledge base of principals and teachers in the three areas: theories of teacher development, models of supervising teachers, and the process of collaborative action research. An outside evaluator interviewed selected participants individually and in small groups; she looked for instances in which teachers recalled their knowledge of adult development and supervisory models, articulated their knowledge of these areas, and recognized instances in which they effectively understood and responded to the behaviors and attitudes of the teaching interns. Performance was also measured by way of journals, supervisory logs, audio and video tapes, year-end surveys, and direct observations of interactions among project participants. These same data sources were used to assess the attitudes of teachers and principals regarding educational research and school-university

collaboration. Teachers and principals completed formal assessments in the areas of ego development, moral judgment, and conceptual level. The scores in year three were compared to those from the instruments used in year one. Project staff analyzed performance data focusing on teacher characteristics that specifically related to growth in complex thinking, the ability to clarify instructional processes, skill in determining alternative supervisory solutions, willingness to take risks, and flexibility in meeting the needs of individual student teaching interns, and interpersonal relationships within the collaborative action research teams.

We designed the intervention so that full year teaching interns were placed in clusters of six to a school. School-based collaborative action research groups consisted of six cooperating teachers, the university supervisor and often the school principal who met at least once a month. The knowledge bases in supervision and teacher development were neither prescribed nor interpreted in a limited fashion. Instead, each collaborative action research group negotiated the scope of the two areas and formed initial boundaries for the topics, concerns, problems, and issues to be further investigated. All participants were active in the beginning of the project to examine, reflect, and evaluate the knowledge bases and their own practice, so that both informed each other. Cooperating teachers learned about developmental theory, investigated alternative supervision strategies, and attempted to vary their supervision practices according to the capabilities, variety, and flexibility observed in their student teaching interns. Cooperating teachers attempted to support the intern in new learning experiences and challenge the intern's development to new levels; this followed Hunt's match and graduated mismatch concepts. Practical and theoretical knowledge interacted continuously as participants worked through the cycles of action research to further analyze, understand, and evaluate their supervisory behaviors with the teaching interns. The cooperating teachers reflected on these experiences through journals, logs, interviews, consultations and the on-going collaborative action research meetings.

The three formal measures of developmental stage were administered to project participants in a pretest in year one and a posttest in year three: the Rest Defining Issues Test (DIT). the Loevinger Washington University Sentence Completion Test (WUSCT), and the Hunt Paragraph Completion Test (PCT), and Each is viewed as an indicator of

how a person processes or derives meaning from experience according to his or her developmental level. The Loevinger largely assesses how an individual thinks about or conceptualizes the self; the Hunt assesses how a person conceptualizes issues of teaching and learning; and the Rest assesses how a person processes social-justice questions. The DIT was scored by project staff, and the WUSCT and PCT were scored by trained experienced raters who have reached high levels of reliability. Summary developmental test scores in year one were made available to individual project participants shortly after the data was scored. At the end of year three, posttest developmental results were given to individuals during an interview session that investigated to what extent and how each participant made use of his or her first set of developmental test scores during the course of the project.

The Defining Issues Test of moral judgment (Rest, 1974; Rest, Narvaez, Mitchell, & Thoma, 1998) is an objective test of moral reasoning that assesses the basic conceptual frameworks by which a person analyzes a social/moral problem (dilemma) and judges the proper course of action. The DIT presents a moral dilemma and a list of definitions of the major issues involved. It uses a multiple-choice rating and ranking system instead of a moral judgment interview. It can be easily administered to groups and objectively scored, and has been researched with firm reliability and validity levels (see Rest, Narvaez, Bebeau, & Thoma, 1999). The Washington University Sentence Completion Test of ego development (Hy & Loevinger, 1996) is based on the assumption that each person has a core level of ego functioning. The purpose of the test is to determine this core level by assigning an ego level based on the distribution of a person's ratings or responses to the thirty-six sentence stems on the test. Reliability and validity data for the WUSCT are strong as reported in Loevinger (1998). The Paragraph Completion Test by Hunt, Butler, Noy, & Rosser (1978) was used in this study to measure teachers' conceptual levels. A number of prior research studies found that persons with high conceptual-level scores showed less tendency to engage in black-and-white thinking, greater ability to integrate multiple perspectives, less rigidity of judgment, greater independence of judgment, and greater tolerance of ambiguity and conflict than did groups with lower conceptual-level scores. Strong validity and reliability data are reported for the PCT (see Miller, 1981).

Analysis of the scores on the DIT, WUSCT, and CL test showed that this collaborative action research project attracted and sustained the involvement of cooperating teachers who scored at higher stages of development. This finding is important. On the pre-test twenty-four of twenty-eight participants scored at Conscientious, Individualistic, and Autonomous stages of ego development. Of these 24, two-thirds scored at the post-conventional (Individualistic and Autonomous) stages on the Loevinger WUSCT. Sixty-one percent (61%) of the cooperating teachers scored at moderately high and high levels of moral judgment on the DIT. Ninety (90%) percent of the cooperating teachers scored at moderately high and high conceptual levels on the CL test . The average pretest score on ego test was the post-conventional Individualistic ego level (N=28, mean score 7.8, s.d. = 1.36) which is the transition between the Conscientious and Autonomous stages. The pretest of moral judgment showed a mean of 60.4% P-score (principled thinking) in responses to dilemma issues on the DIT (N=18, s.d.= 14.99). The average pretest score on the conceptual level test was 2.28 (N=20, s.d.=.45) indicating the ability for using abstract, internal principles and multiple viewpoints, which is categorized as high conceptual complexity.

These pretest results from teachers in the collaborative action research in supervision study are higher compared to pretest data in the earlier studies summarized in this paper. It is understandable how teachers scoring at fairly high developmental stages did not exhibit vertical stage change in just two years, so it is no surprise that we found no significant vertical change in teachers' developmental scores. Loevinger claims that at least five years is needed for stage change. We believe this is true, particularly at the higher post-conventional stages. Our work in this study and the prior studies indicated vertical stage change is more likely to occur within the conventional scorers, with the higher stage teachers experiencing horizontal growth (decalage) within their post-conventional stages.

What is important about this collaborative action research project with cooperating teachers is that teachers who self-selected to be involved because of their interest in a new role as cooperating teachers and who maintained their involvement throughout the two years were teachers at higher stages of development. The benefits and outcomes experienced by these cooperating teachers went beyond their

individually developing supervisory roles as cooperating teachers. All of the cooperating teachers indicated collaboration with the university had improved. 87% indicated that collaboration among teachers within their schools had improved, although this was not a stated goal of the supervision project. All of the cooperating teachers reported the discovery of new ways of looking at people, in particular, at different developmental stages persons have different strengths and weaknesses, capacities and limitations. Teachers reported an increased sense of efficacy. Over three-fourths of the group reported significant changes in their school's recruitment, placement, supervision, and assessment of interns. Cooperating teachers perceived benefits from the collaborative action research process in terms of the opportunities for sharing and support among their colleagues. 80% appreciated the sense of common purpose and common challenges. 95% reported the feeling of mutual support, and 85% liked the open sharing in supervisory team meetings. We observed an increased sense of professionalism. Action research group discussions often focused on larger school improvement issues and concerns beyond the specific supervision of interns but which affect the climate of the school. In this project, the context of the collaborative action research groups had supported and challenged higher stage teachers who wished to take on significantly new supervisory roles with student teaching interns. An outline of the benefits and outcomes is presented in Table 3, Outcomes and Benefits of Collaborative Action Research on Supervision Project

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Table 3, Outcomes and Benefits of Collaborative Action Research on Supervision Project

Outcomes/Benefits in the Use of Models of Supervising for Teacher Development

1. Discovery of new ways of looking at people: at different developmental levels persons have different strengths and weaknesses, capacities and limitations.
2. Appreciation of the theoretical basis and justification for effective beliefs & behaviors
3. Healthy dissatisfaction with current supervison practices; showing the beginnings of experimentation in supervising.
4. Principals add to their repertoire of supervisory styles; appreciation of the legimacy of using different supervisory styles with different people
5. Cooperating teachers learn developmental supervision; less impulsive and directive with interns; more developmental, objective, and reflective

Benefits/Outcomes for Interns:

1. a broader perspective through cluster placement of 6 interns per school site
2. Interns recognize and value that breadth of experience; opportunities to work with other in the school; observing in similar and different grade levels;sharing the experiences of many, diverse, cooperating teachers; learning to get along with other adults in the schools
3. Interns have an identity/support group in the school; the cluster placement provides interns with an identity group; they provide support for one another; they feel security in numbers.
4. Interns have been provided with opportunities to work together; to learn and teach by collaborative with each other.

Outcomes/Benefits for the university teacher education program:

1. Development of more cluster sites and collaborative supervisory groups; both elementary and secondary.
2. Increased stipends for experienced cooperating teachers; university courses and seminars in supervision and adult development.
3. Commitment to collaboration between university supervisors and cooperating teachers; cluster site participants meet together regularly, often once a month.
4. Investigation of the changing role of the university supervisor; the collaborative supervisory models are making the university supervisor's role more exciting and more valuable in different ways.
5. Additional collaborative action research component; in some cluster sites; encouraged by the university supervisor's interest and expertise as a resource to ideas for action research; enhances the supervision job for promotion and tenure purposes.

Outcomes/Benefits for Collaborative Supervision in the Schools

1. Increased sense of professionalism; sense of responsibility for the school and the staff; group discussions often focus on larger issues beyond the here and now supervision of interns.
2. Opportunities for sharing and support; appreciation of common purpose and common challenges; less isolation; mutual support and open sharing; belief that their collective learning needs to continue.
3. Increased sense of effectiveness and personal/professional growth; expanded roles; increased risk-taking; gaining confidence; helping each other grow; doing a better job with interns.
4. Numerous spin-offs; individual research projects; experimentation with peer supervision; expanding career aspirations; writing grants; university teaching; conference presentations.

Outcomes/Benefits for School-University Collaboration

1. School and university educators committed to improving the teacher education process; believing that teachers and schools should have more impact; enabling collaborative approaches to supervising interns.
2. A School-University Collaborative for Teacher Education; teachers, principals, university supervisors and teacher education faculty meeting together; collaborating

on the cluster placement concept; strengthening the link betweeen university supervision and cooperating teacher supervision; exploring models of supervising teachers; exploring common university and public school issues; improving public relations.

3. Cluster site coordinators; organizing, mobilizing forces among the cooperating teachers, principal, and interns in the school site; connecting schools and the university; liaisons to university resources, programs, faculty.

Summary

Recent reports in education call for restructuring and change; they envision restructuring as a total system overhaul involving changes in organizational structures, practices, beliefs, and values. They recognize and acknowledge that the process of restructuring engenders anxiety in some teachers and administrators which leads them to resist, avoid, or withdraw from the restructuring effort. As a means for helping to reduce anxiety, increase commitment, and encourage participation, they suggest the use of a collaborative process for developing shared visions, missions, goals and strategies for change (e.g. Covey, 1990; Senge, 1990; Sergiovanni 1990). The cognitive-structural theories and research findings suggest the use of interactive challenges and supports to facilitate teachers' participation, inquiry, and reflection and to reduce anxiety in their new roletaking experiences in the classroom and school community. This paper reviewed recent collaborative action research studies with experienced teachers who have assumed complex new roles. Collaborative action research, under certain conditions, can become an effective program for promoting the good and the moral through the personal and professional (e.g. cognitive-structural) growth of teachers.

The culture of many schools, like most business organizations, reflect a work style of the dominant culture, one of separation rather than connection. The dominant culture assumes that the individual must change to fit the current system and that the individual is to blame when problems arise. Connected organizations are what Peter Senge (1990) terms learning organizations. In learning organizations, workers at all levels bring their skills and individual expertise to meetings and together work on problems. This is quite different from the belief that the expertise rests in only the more powerful person, the person in charge. Also, in learning organizations, one can ask for

help while still recognizing and feeling self-confident about one's own particular strengths in the organization. Effectiveness is based in the connections among people and the way they mutually identify and solve problems. Thus to bring into a learning organization these new understandings, where mutuality and relation are centerposts, requires transformative change. It is similar to what we have called structural change, and in fact can be further defined in terms of the characteristics of higher ego stage and ethical stage characteristics. An organization involved in transformative change has characteristics like mutual learning, mutual growth, empowering others and empowering teams within the organization.

Administrative support and participation is crucial. Colleague involvement of other teachers in the school is also important. Some school structures and school climate put a lid on the level of development possible for teachers and for the organization. Collaborative action research teams can still become temporary systems in the more permanent school organization, providing the setting for growth of the participants, but if the temporary system of the team cannot find ways to interface, connect, cooperate and collaborate with the other teachers and the administrator in the school, then the products of the collaborative action research efforts may not endure. It becomes important from the outset that participants in collaborative research efforts continually strategize about structures that will allow the method and products of the collaborative action research to endure.

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